

REMARKS

Claims 1 to 26 are pending. Claims 1 and 26 are currently amended.

This amendment, a Declaration under 37 C.F.R. § 1.132 signed by Dr. Steven J. Martin, and a Declaration under 37 C.F.R. § 1.132 signed by Dr. Mark J. Pellerite accompany a Request for Continued Examination under 37 C.F.R. § 1.114.

Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 1, 2, 4-8, 10-23, 25, and 26 as allegedly obvious over U.S. Patent No. 6,277,485 B1 (hereinafter “US ‘485”) issued to Invie et al., in view of either the applicant’s admitted prior art (hereinafter “AAPA”) or Japanese Patent Publication 2002-187740A (hereinafter “JP ‘740”) of Nippon Sheet Glass, and in further view of U.S. Patent Application Publication 2004/0043142 A1 (hereinafter “US ‘142”) of Birch et al. Applicants respectfully submit that the pending claims are not obvious over these combinations of references.

The Examiner stated the following in item 9 on page 6 of the office action dated November 17, 2004:

“Therefore, it would have been obvious to one of ordinary skill in the art to remove the antisoiling coating of Invie et al. by treating the article with a plasma under vacuum conditions (as taught by Birch et al.) with the reasonable expectation of successfully and advantageously removing the coating by using a method that does not generate waste.”

Applicants respectfully disagree with the Examiner. The surface treated by Birch et al. in US ‘142 is a glass substrate. As stated in the Declarations accompanying this response by Dr. Mark J. Pellerite and by Dr. Steven J. Martin, the nature of this glass substrate surface is different than the nature of the antireflective coatings treated in the present application. More specifically, the antireflective coatings are more porous, have a surface that includes clusters of particles, and are more susceptible to damage than the surface of a glass substrate. A small removal of material from the outer surface of the antireflective coating can change the optical properties of an article containing such a coating. However, the small removal of material from the outer surface of a glass substrate has no discernible effect on the optical properties of the glass substrate. Therefore, it is not

obvious that a treatment that is suitable for a robust surface such as the surface of a glass substrate would be suitable for antireflective coatings that are porous and that contain clusters of particles.

Independent claims 1 and 26 have been amended to further clarify that the antireflective coating is not like a glass substrate. More specifically, the claims have been amended to state that the antireflective coatings are porous and contain clusters of particles. Birch et al. in US '142 provides no teaching or suggestion that such coatings could be treated with a plasma to remove antisoiling coatings. There is no teaching or suggestion in any of the references alone or in combination that porous, antireflective coatings containing clusters of particles could be subjected to plasma treatment and remain intact as well as functional.

Thus, independent claims 1 and 26 are not obvious over this combination of references. For at least the same reasons, dependent claims 2, 4-8, 20-23, and 25 are not obvious over this combination of references.

The Examiner rejected claims 4 and 23 as allegedly obvious over US '485 in view of AAPA, in further view of US '142, and in further view of JP '740. Applicants respectfully submit that the pending claims are not obvious over this combination of references.

Birch et al. in US '142 provides no teaching or suggestion that antireflective coatings, as amended herein to clarify that they are not the same as a glass substrate surface, could be treated with a plasma to remove antisoiling coatings. There is no teaching or suggestion in any of the references alone or in combination that porous, antireflective coatings containing clusters of particles could be subjected to plasma treatment and remain intact as well as functional. Thus, claims 4 and 23 are not obvious over this combination of references.

The Examiner rejected claim 3 as obvious over US '485 in view of either AAPA or JP '740, in further view of US '142, and in further view of U.S. Patent No. 5,474,658 (hereinafter "US '658") issued to Patrick et al.

The addition of US '658 does not remove the deficiencies noted above in the combination of references. That is, the combination of references does not teach or suggest that porous, antireflective coatings containing clusters of particles could be subjected to plasma treatment and

remain intact as well as functional. Thus, claim 3 is not obvious over the combination of references.

The Examiner rejected claims 8 and 9 as obvious over US '485 in view either of AAPA or JP '740, in further view of US '42, and in further view of U.S. Patent No. 4,687,707 (hereinafter "US '707") issued to Matsuo et al. Applicants respectfully submit that the pending claims are not obvious over this combination of references.

The addition of US '707 does not remove the deficiencies noted above in the combination of references. That is, the combination of references does not teach or suggest that porous, antireflective coatings containing clusters of particles could be subjected to plasma treatment and remain intact as well as functional. Thus, claims 8 and 9 not obvious over the combination of references.

The Examiner rejected claim 24 as obvious over the combination of US '485, in view either of AAPA or JP '740, in further view of US '142, and in further view of U.S. Patent No. 5,707,740. Applicants respectfully submit that the pending claims are not obvious over this combination of references.

The addition of US '740 does not remove the deficiencies noted above in the combination of references. The combination of references does not teach or suggest that porous, antireflective coatings containing clusters of particles could be subjected to plasma treatment and remain intact as well as functional. Thus, claim 24 not obvious over the combination of references.

Declarations

A declaration signed by Dr. Steven Martin and a declaration signed by Dr. Mark Pellerite both contain evidence that the antireflective coating recited in the pending claims has a surface that is different than a glass substrate. As demonstrated using atomic force microscopy, the antireflective coatings contain clusters of particles. Dissolution of at least a portion of the outer layer of the antireflective coating altered the optical characteristics of the optical article containing such a coating. In contrast, dissolution of the outer surface layer of a glass substrate caused no discernible change. Additionally, the glass substrate was harder than the antireflective

coatings. When subjected to similar abrasion conditions, the functionality of the antireflective coating was destroyed while no discernible change occurred to the glass substrate.

Based on the differences in their surfaces, one of skill in the art could not conclude that a treatment suitable for a glass substrate would be suitable for an antireflective coating. Thus, the teaching in US '142 by Birch et al. that a plasma was a suitable treatment method for a glass substrate provides no teaching regarding the suitability of a plasma treatment method for an antireflective coating that contains clusters of particles and that has a porous surface. Further, because even a small removal of an outer surface of an antireflective coating can affect the optical properties of an optical article having such a coating and because a small removal of an outer surface of a glass substrate has no discernible change in its optical properties, one of skill in the art cannot conclude that a treatment suitable for a glass substrate would necessarily be suitable for an antireflective layer of an optical article such as an ophthalmic lens.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested. Allowance of claims 1-26, as amended, at an early date is solicited.

Respectfully submitted,

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Date By: Jean A. Lown)
Jean A. Lown, Reg. No.: 48,428
Telephone No.: (651) 733-3169

Office of Intellectual Property Counsel
3M Innovative Properties Company
Facsimile No.: 651-736-3833